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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/005,166	12/07/2001	Joe Mihelcic	3342077-0005	9856

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FASKEN MARTINEAU DUMOULIN LLP
4200 TORONTO DOMINION BANK TOWER
BOX 20 TORONTO-DOMINION CENTRE
TORONTO, ON M5K 1N6
CANADA

EXAMINER	
LAM, HUNG H	
ART UNIT	**PAPER NUMBER**
2615	

DATE MAILED: 08/25/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/005,166	MIHELCIC, JOE	
	Examiner	Art Unit	
	Hung H. Lam	2615	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *13 June 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-13* is/are pending in the application.

4a) Of the above claim(s) *4-13* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *07 December 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Election/Restrictions

2. Applicant timely traversed the restriction (election) requirement in the reply filed on 06/13/05. However, only claims 1-3 are readable upon the elected species 4. Claims 4-13 are readable on the non-elected species of Figs. 9-18 respectively. Therefore, claims 4-13 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected species, there being no allowable generic or linking claim.

Applicant is reminded that upon the allowance of a generic claim, applicant will be entitled to consideration of claims to additional species which are written in dependent form or otherwise include all the limitations of an allowed generic claim as provided by 37 CFR 1.141. If claims are added after the election, applicant must indicate which are readable upon the elected species. MPEP § 809.02(a).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kakiuchi (US-6,822,687) in view of Chapman (US-6,450,706) and further in view of Ellenby (US-6,690,370).

With regarding **claim 1**, Kakiuchi discloses a data acquisition apparatus for scanning a surface to record digital images thereof and to record data for determining three-dimensional coordinates thereof (Col. 1, Ln. 58-63), said apparatus comprising:

at least one camera for recording said digital images of said surface, said camera having an optical axis (Figs. 1-2; Col. 1, Ln. 57-62; Col. 4, Ln. 66-67 – Col. 5, Ln.1-15);

at least two lasers for marking points in said digital images for determining said three dimensional coordinates of said surface (Figs. 1-2; lasers 14, 14a and 14b; Col. 4, Ln. 47-51; Col. 5, Ln. 36-50), said lasers having optical axes, said optical axes of said camera and said lasers being essentially parallel (see Figs. 2 and 8);

However, Kakiuchi fails to teach:

an essentially horizontal rail for mounting said camera and said lasers, and said rail having means for horizontally shifting said camera and said lasers along said rail;

at least one essentially vertical post attached to said rail by means for rotating and horizontally shifting said rail, said post having means for vertically shifting said rail;

at least one moveable platform for mounting said posts and for positioning said camera and said lasers proximate to said surface. However, the limitations are well known in the art as shown in Chapman.

In the same field of endeavor, Chapman teaches a camera crane wherein a rail/ track (60) provides a means to move the mounted camera back and forward horizontally (Fig. 1; Col. 4, Ln. 43-55). Chapman further teaches that a boom arm (44) and the track (60) are pivotally mounted to a post assembly (42) and rotated around a pivot joint (46) in order to vertically changing the height of the rail/track (Fig. 1; Col. 3, Ln. 44-49). Moreover, a post assembly (42) is connected to the movable platform and thereby permitting the camera crane to move closer or farther to the photographing objects (Fig. 1; dolly platform 28; Col. 3, Ln. 35-38). In light of the teaching from Chapman, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the three dimensional camera of Kakiuchi by having the camera crane support taught in Chapman in order to rise, move, or rotate the camera vertically/horizontally in different directions. The modifications thus permitting a camera operator to have completely control over all camera movement and thereby a separate leveling heads or other accessories are not needed.

Kakiuchi teaches a camera capturing and recording three-dimensional image (Col. 1, Ln. 58-63; Col. 5, Ln. 25-35). Further more, Kakiuchi teaches that the system control circuit (Fig. 2; 35) of the camera is interfaced with an external computer (Fig. 2; computer 41; Col. 5, Ln. 27-32). Chapman teaches that a single camera operator has complete control of all needed camera movements (Col. 13, Ln. 52-55).

Kakiuchi in view of Chapman teaches a data acquisition equipment (computer 41) for adjusting said platforms, said posts, said rail, said camera, and said lasers. Kakiuchi and Chapman fails to teach recording position data for said platforms, said posts, said rail, said camera, and said lasers, and, for recording said digital mages.

In the same field of invention, Ellenby teaches a three dimensional vision system comprising a computer, a sensor (Fig. 14; GPS, attitude, range; Col. 6, Ln. 45-67), a camera, and a display (Fig. 14; Col. 3, Ln. 60-Col. 4, Ln. 16). Ellenby further teaches that a move in the camera causes the perspective of the real scene to change and to account for this change, the computer system communicates with a position sensors and applies rotation, scale, translation algorithms to the camera's new position such that the perspective of the model continuously updates in accordance with the true perspective of the real scene (Col. 4, Ln. 24-40). Additionally, Ellenby teaches the steps of measuring the position and attitude of the camera, recording a first point associated with said measurement, changing either the position state/ attitude state of the camera, recording at least one other point associated with the new position and attitude state and displaying said points superimposed with a captured image and thereby allowing viewer to see the scene while also viewing the model being formed together in the same perspective (Col. 7, Ln. 21-30; since Ellenby teaches a GPS, it is inherent that the position data of the camera reflects the data position of the platform, the posts, the rail and the lasers). In light of the teaching from Ellenby, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the camera of Kakiuchi and Chapman with a data acquisition system/ computer system as taught by Ellenby in order to control the complete system, record the position of the camera and superpose the measured points with a captured image (Ellenby; Col. 7; Ln. 21-31).

With regarding to **claims 2 and 3**, Kakiuchi in view of Chapman and Ellenby discloses the apparatus wherein said surface is selected from the group comprising an object, an area, a

room, a building, an indoor area, and an outdoor area wherein said surface is variable in size (Kakiuchi teaches a handheld three dimensional camera in Fig. 1 which captures a small surface area of an object, a room, an indoor or outdoor area. Furthermore, Chapman teaches the camera crane, which capture a larger surface area of a building, an indoor or outdoor area).

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

a) Weng (US-6,081,273) discloses a tripod for supporting a three-dimensional object modeling camera.

b) Stone (US-6,600,553) discloses a three-dimensional telescope scanning having the capability of extending or retracting the masts horizontally or vertically.

c) Migdal (US-6,205,243) discloses the three-dimensional camera system wherein the camera is mounted between two lasers system.

d) Bricmont (US-4,131,914) discloses a camera system wherein the vertical and horizontal camera-support are extendable.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hung H. Lam whose telephone number is 571-272-7320. The examiner can normally be reached on Monday - Friday 8AM - 5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's primary, NGOC YEN VU can be reached on 571-272-7320. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

HL

08/22/2005

NGOC-YEN VU
PRIMARY EXAMINER